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Aerial Rhizomes in *Phragmites australis*¹

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A ramet of the Costa Rican sterile strain of *Phragmites australis* produced aerial rhizomes 3-4 m above ground level, an event not yet seen in nature.

INDEX DESCRIPTORS: *Phragmites australis*, aerial rhizomes, stolons.

A ramet of the gigantic sterile strain of *Phragmites australis* (Cav.) Trin. ex Steud. from Costa Rica (Pohl 1974), growing in the greenhouse of the Botany Department at Iowa State University began in 1984 producing elongated, vertically hanging scaly stems with short internodes, at a level 3-4 m above the bases of the culms. The plants in the original large paludose population in Costa Rica from which our plant was taken never produced such rhizomes, although the culms occasionally bore short erect extravaginal branches near the apex.

Should these pendent stems be called "rhizomes" or "stolons"? Authors differ widely in their usage of these terms. Font Quer, (1975), writing in his compendious *Diccionario de Botanica*, offers a detailed definition of the term rhizome, stressing the underground position and the presence of cataphylls rather than photosynthetic leaves. His definition of the term stolon is much less precise and includes structures that most would call rhizomes. I have chosen to regard rhizomes as specialized, usually subterranean stems that bear scales or cataphylls, in contrast with stolons, which are superficial and bear photosynthetic leaves. In this sense, the structures borne by our *Phragmites* strain are rhizomes, despite their aerial position.

One of the larger rhizomes on our plants was 4 m long and had internodes 8 mm in diameter. It bore 19 branches, which were up to 2 m long (Fig. 1). Most of the 52 short internodes of the main axis were clothed with papery sheaths with short, deciduous blades. The main rhizomes and their branches hung nearly vertically, but their tips recurved upward. These upwardly directed tips produced normal foliage leaf blades.

An early account of production of similar rhizomes by *Phragmites* in England was published by Bromfield (1842). The most comprehensive treatment of *Phragmites* by Rodewald-Rudescu (1974) illustrates aerial branching in certain forms of *P. karka* (Retz.) Trin. ex Steud., but his illustration indicates culms with strongly ascending leafy branches from the upper portions of the culms, not dependent rhizomes. Conert (1961) lists a var. *stolonifera* Meyer of *P. australis* (as *P. communis*) with creeping or floating basal rhizomes, but these are not aerial.

Short sections of rhizomes taken from our plant and placed horizontally in soil rapidly began growth of apparently normal culms bearing green foliage leaves.



Fig. 1. Aerial rhizomes of *Phragmites australis*, cultivated at Iowa State University from Costa Rican rhizomes.

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